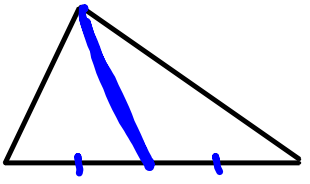
4.6 Medians of a Triangle

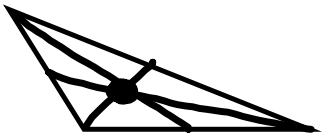
Objective: Identify medians in triangles.

Use properties of medians to find lengths.

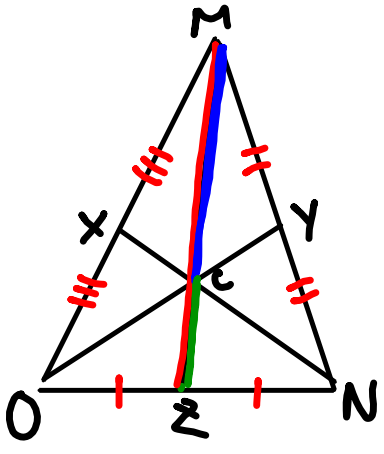
A <u>median of a triangle</u> is a segment from a vertex to the midpoint of the opposite side.



The three medians of a triangle intersect at a point called the <u>centroid</u>.



Intersection of Medians of a Triangle Theorem: The medians of a triangle intersect at the centroid, a point that is two thirds of the distance from each vertex to the midpoint of the opposite side.



$$\text{Vertex part} = \frac{2}{3} \cdot \underset{\text{median}}{\text{Whole}}$$

$$\text{Side part} = \frac{1}{3} \cdot \underset{\text{median}}{\text{Whole}}$$

Checkpoint at the top of page 209.

vertex = $\frac{2}{3}$ whole

side = $\frac{1}{3}$ whole

1. BD = 24 = whole

BE = vertex $\quad BE = \frac{2}{3}(24)$

ED = side $\quad BE = 16$

$ED = \frac{1}{3}(24)$

$ED = 8$

2. JK = 4 = side $\quad$ JG = whole $\quad$ KG = vertex

3. $4 = \frac{1}{3} JG \cdot 3$ $\quad KG = \frac{2}{3}(12)$

$12 = JG$ $\quad KG = 8$

6. PQ = side $\quad$ PN = whole $\quad$ QN = 20 = vertex

$\frac{3}{2} \cdot 20 = \frac{2}{3} PN \cdot \frac{3}{2}$ $\quad PQ = \frac{1}{3}(30)$

$30 = PN$ $\quad PQ = 10$

Name

4.6

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